cites to the summary of the invention (col. 4, line 35 through col. 6, line 40). In particular, the Examiner says that Billheimer et al. constructs a term frequency matrix of the term frequencies for each of the documents, transforms the term frequencies for statistical purposes and projects the documents or the terms into a lower dimensional subspace.

However, as Applicants argued in their appeal brief, Billheimer et al. only discloses a term-frequency matrix A defined from a set of documents. Each entry in A is the raw frequency of a term in a given document, i.e., Aij is the number of times a term ti occurs in a Dj. See Billheimer et al., col. 11, lines 2-11. The text mining operation (step 118 of Fig. 3 of Billheimer et al.), the re-indexing operation (step 112 of Fig. 3 of Billheimer et al.) and the update indexing operation (step 118 of Fig. 3 of Billheimer et al.) are all based on the term-frequency matrix A. Applicants note that the Examiner has not responded to this argument - specifically, that the "weighted document term frequency vector" in the claims is not with respect to other documents in a document collection.

Regarding the Goldstein article, which was cited by Applicants and described in the background section, it discloses a "generic" approach to text summarization. As set forth in the equation cited by the Examiner, the Goldstein relevance score (which determines which sentences to include in the summarization) is based upon a weighted sum of two components: (1) the correlation between some statistical feature S with a query Q and (2) the correlation between S and some linguistic feature L. In other words, those sentences which have a high number of (1) query words and (2) linguistically-significant words will receive a high relevance score for

summarization. However, the claimed invention does not require any notion of linguistic importance nor of any such pre-specified query.

The present invention computes its relevance score, as recited in claim 1, "for each weighted sentence term-frequency vector in accordance with relevance to said weighted document term-frequency vector". In other words, the score for the sentence is based on a comparison of its statistical features with the statistical features of the document as a whole. Note that this aspect of the claim is entirely missing from Goldstein (and from Billheimer for that matter). The Goldstein article does not compute its relevance score based on the relevance of the statistical feature set of the sentence to a statistical feature set for the entire document.

For at least these reasons, Applicants request that the Examiner withdraw the prior art rejections of claims 1-20.

Rejections of claims 21-32

Claims 21-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Billheimer et al. in view of Goldstein et al. and further in view of Furnas et al. ("Information Retrieval Using a Singular Value Decomposition Model of Latent Semantic Structure"). Applicants traverse these rejections because the cited references fail to disclose or suggest all of the claim limitations.

The Examiner's application of Goldstein to claims 21-32, does not make any sense. Goldstein does not disclose or suggest using singular value decomposition. As stated above, Goldstein is concerned with weighting of correlations between statistical features and a pre-

specified query, on the one hand, and statistical features and linguistic features on the other. Neither of these features is relevant to claims 21-32.

Regarding Furnas, it does not disclose singular value decomposition for document summarization. SVD is explicitly used in Furnas for "automatic indexing and retrieval" which is a different problem. Accordingly, this is why the matrices depicted in Furnas have a column per document -- not per sentence in a single document. This is exactly the same issue for the Billheimer patent above for the above-mentioned matrix. Thus, the issue in Furnas is to find which document in a list of documents is most relevant to a query, which Furnas answers using singular value decomposition. Therefore, the Examiner's attempt to combine Furnas with Goldstein and with Billheimer simply does not make any sense. For at least these reasons, Applicants request that the Examiner withdraw the prior art rejections of claims 21-32.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/817,591

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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